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[54] COMPOSITIONS AND METHOD FOR PRODUCING FUEL RESISTANT LIQUID POLYTHIOETHER POLYMERS WITH GOOD LOW TEMPERATURE FLEXIBILITY

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Calif.

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(List continued on next page.)

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[57] ABSTRACT

A polythioether includes a structure having the formula I

$$-R^1$$
 $-[-S$ $-(CH_2)_2$ $-O$ $-[-R^2$ $-O$ $-]_m$ $-(CH_2)_2$ $-S$ $-R^1$ $-[-S$

wherein

 R^1 denotes a divalent C_{2-6} n-alkyl, C_{3-6} branched alkyl, C_{6-8} cycloalkyl or C_{6-10} alkylcycloalkyl group, —[(— CH_2 —) $_p$ —X—] $_q$ —(— CH_2 —) $_r$ —, or —[(— CH_2 —) $_p$ —X—] $_q$ —(— CH_2 —) $_r$ — in which at least one — CH_2 — unit is substituted with a methyl group,

 R^2 denotes methylene, a divalent C_{2-6} n-alkyl, C_{2-6} branched alkyl, C_{6-8} cycloalkyl or C_{6-10} alkylcycloalkyl group, $-[(-CH_2-)_p-X-]_q-(-CH_2-)_r$ in which at least one $-CH_2-$ unit is substituted with a methyl group,

X denotes one selected from the group consisting of O, S and —NR⁶,

R⁶ denotes H or methyl,

m is a rational number from 0 to 10,

n is an integer from 1 to 60,

p is an integer from 2 to 6,

q is an integer from 0 to 5, and

r is an integer from 2 to 10.

The polythioether is a liquid at room temperature and pressure.

23 Claims, 2 Drawing Sheets

